IN THE CLAIMS:

Please amend the claims as shown below. A complete listing of claims is presented.

1. (Original) An image coding device comprising:

memory means for reading and storing predetermined image areas of input image data; and

a wavelet conversion section for performing wavelet conversion filtering on the image areas, in a horizontal or vertical direction, as soon as the image data is stored in the memory means,

the wavelet conversion section including fixed-point type wavelet conversion means and integer type wavelet conversion means.

2. (Original) The image coding device according to claim 1, wherein the fixed-point type wavelet conversion means comprises a bit-shifter and a wavelet converter; and

the integer type wavelet conversion means comprises only the wavelet converter.

3. (Original) The image coding device according to claim 2, wherein the wavelet converter of the integer type wavelet conversion means has a same structure as that of the wavelet converter of the fixed-point type wavelet conversion means.

4. (Original) The image coding device according to claim 3, wherein the wavelet converter comprises a multiplier or a shift calculator, an adder/subtracter, and a register.

5. (Original) The image coding device according to claim 3, wherein the multiplier or shift calculator, the adder/subtracter, and the register as structural components are all common to the wavelet converter of the integer type wavelet conversion means and the wavelet converter of the fixed-point type wavelet conversion means.

6. (Original) The image coding device according to claim 1, wherein the integer type wavelet conversion means is selected to perform reversible coding, and the fixed-point type wavelet conversion means is selected to perform irreversible coding.

7. (Original) The image coding device according to claim 1, wherein the fixed-point type wavelet conversion means is selected to perform coding with image quality taken to be important, and the integer type wavelet conversion means is selected to perform reduction of hardware, saving of power consumption, or coding at a low bit-rate.

8. (Original) An image coding method comprising the steps of:

reading and storing predetermined image areas of input image data into a memory; and performing wavelet conversion filtering on the image areas, in a horizontal or vertical direction, as soon as the image data is stored in the memory,

wherein in the wavelet conversion , either fixed-point type wavelet conversion or integer type wavelet conversion is selected.

9. (Original) An image decoding device comprising:

fixed-point type wavelet reverse conversion means;

integer type wavelet reverse conversion means; and

memory means for writing and keeping only a predetermined image area of a decoded image generated by reverse conversion by means of one of the fixed-point type wavelet reverse conversion means and the integer type wavelet reverse conversion means.

10. (Original) The image decoding device according to claim 9, wherein the fixed-point type wavelet reverse conversion means comprises a bit-shifter and a wavelet reverse converter, and the integer type wavelet reverse conversion means comprises only the wavelet reverse converter without the bit-shifter.

11. (Original) The image decoding device according to claim 10, wherein the wavelet reverse converter comprises a multiplier or a shift calculator, an adder/subtracter, and a register.

12. (Original) The image decoding device according to claim 11, wherein the multiplier or shift calculator, the adder/subtracter, and the register are all common to the integer type wavelet reverse conversion means and the fixed-point type wavelet reverse conversion means.

13. (Withdrawn) An image decoding device into which a coded bit stream generated
by a coding device comprising integer type wavelet conversion means and/or fixed-point type
wavelet conversion means is inputted, the image decoding device comprising:

wavelet reverse conversion means;

gain adjustment means for a high-band component coefficient;

a bit-shifter; and

means for detecting whether wavelet conversion performed by the coding device is of
an integer type or a fixed-point type, from the inputted coded bit stream,

wherein if the wavelet conversion is of the integer type, a decoded image is outputted
without performing gain adjustment of the high-band component coefficient or a bit shift after
the wavelet reverse conversion, or if the wavelet conversion is of the fixed-point type, the
gain adjustment of the high-band component coefficient and the bit shift after the wavelet
reverse conversion are carried out, to output a decoded image.

14. (Original) An image decoding device into which a coded bit stream generated by
a coding device comprising integer type wavelet conversion means and/or fixed-point type
wavelet conversion means is inputted, the image decoding device comprising:

means for detecting whether wavelet conversion performed by the coding device is of
an integer type or a fixed-point type, from the inputted coded bit stream;

integer type wavelet reverse conversion means for decoding the coded bit stream
converted by the integer type wavelet conversion means; and

means for controlling decoding operation to be paused if the inputted coded bit stream
is of the fixed-point type.

15. (Original) An image decoding method comprising:

a wavelet reverse conversion step of performing fixed-point type wavelet reverse
conversion or integer type wavelet reverse conversion; and

a step of writing and keeping only a predetermined image area of a decoded image
generated by reverse conversion performed by the wavelet reverse conversion step.

16. (Withdrawn) An image decoding method in which a coded bit stream generated
by a coding device comprising integer type wavelet conversion means and/or fixed-point type

wavelet conversion means is inputted and wavelet reverse conversion is performed, comprising the steps of:

detecting whether wavelet conversion performed by the coding device is of an integer type or a fixed-point type, from the inputted coded bit stream; and

outputting a decoded image without performing gain adjustment of a high-band component coefficient or a bit shift after wavelet reverse conversion when the wavelet conversion is detected to be of the integer type by the detecting step, or performing the gain adjustment of the high-band component coefficient and the bit shift after the wavelet reverse conversion to output a decoded image, when the wavelet conversion is detected to be of the fixed-point type by the detecting step.